



Best Available Copy

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,689	11/04/2003	Jyrki Mattila	59643.00310	4933

32294 7590 01/30/2008  
SQUIRE, SANDERS & DEMPSEY L.L.P.  
14TH FLOOR  
8000 TOWERS CRESCENT  
TYSONS CORNER, VA 22182

EXAMINER
----------

LAM, DUNG LE

ART UNIT	PAPER NUMBER
----------	--------------

2617

MAIL DATE	DELIVERY MODE
-----------	---------------

01/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/699,689

Applicant(s)

MATTILA, JYRKI

Examiner

Dung Lam

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3,5-12 and 14-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-12 and 14-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/27/07 has been entered.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9 and 23 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The above claims are directed toward a system which should contain apparatus/devices and physical structures along with their functional interrelationships. However, the claim limitations are citing only abstract intangible concepts such as the layout of the cells with no physical structures.

***Priority***

Receipt is acknowledged of papers submitted on 2/3/06 and 9/27/07 under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims **1- 21, 23 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Schilling** (US Patent Number 6128328) in view of **Reudink** (US 5889494).

2. Regarding **claim 1**, Schilling teaches in Figure 5 a cellular communication system including at least one cell (A, B, C, Fig. 5), said cell comprising:

a coverage layer (A, B, C, Fig. 5) defining having a fixed (by definition, a cell has a fixed coverage area provided by at least one carrier. The concept of having a fixed coverage that is defined by the range that the broadcast channel can reach is also admitted in the current application's background, para. 6, 7, 28 of applicant's specification; Schilling C7 L29-30) coverage area (Col. 3, lines 40-57);

a capacity layer comprising at least one carrier, each carrier in the capacity layer having a dynamic variable coverage area (Fig. 5A further comprises of multiple bands of frequencies, e.g. F1, F2, F3, F4, F5, F6; alternatively, Figs. 6 and 7; C9 L36-67), to dynamically vary the capacity of the cell (Col. 3, lines 36-39, Col. 8, lines 21-28 and Col

Art Unit: 2617

11 lines 25-55; alternatively, C12 L54-64; C1258-65 sector size is adjustable to accommodate from 80 users originally to now 81 users) which means more carriers are used to accommodate more users. Although, there's no explicit teaching that the number of carriers is increase in order to increase the capacity, it known in the art that one way to one way to accommodate more users is to increase the number of channels. In an analogous art, Reudink teaches the concept of adjusting the number of channels to accomodate the current utilization of the cell (C11 L23-38). Therefore, one skill in the art at the time of the invention would see that Schilling's teaching of the adjusting of the sectors would have some adjusting means to adjust the number of channels/carriers in order to accommodate the unpredictable utilization of the sector.

3. Regarding **claim 2**, Schilling and Reudink teach all the limitations according to claim 1. Schilling's teachings discloses a power level of a carrier in a downlink of the coverage layer defines the coverage of said at least one cell (a base station coupled with base-power means to radiates signal over a coverage area from the base station to a remote, Col. 3, lines 40-57).

4. Regarding **claim 3**, Schilling and Reudink teach all the limitations according to claim 2. Schilling further teaches said power level is variable (Col. 10, line 19-21).

5. Regarding **claim 4**, Schilling and Reudink teach all the limitations according to claim 1. Schilling further teaches that a number of carriers in the capacity layer is variable (the radii of the concentric area is adjustable which means the density or

Art Unit: 2617

capacity of the layer is variable, Col. 8 lines 31-35 and Col. 10, lines 25-26, Col. 12 Line 55 - Col 13 Line 26).

6. Regarding **claim 5**, Schilling and Reudink teach all the limitations according to claim 1. Schilling further teaches a power level of at least one carrier of said number of carriers in the capacity layer is variable (Col. 10, line 19-21 and Col. 11, lines 51-65).

7. Regarding **claim 6**, Schilling and Reudink teach all the limitations according to claim 1. Schilling teaches that a total transmission power for a downlink is divided between the coverage layer and the capacity layer of said at least one cell in dependence on the coverage and capacity requirement of the system (Col. 11, lines 30-65).

8. Regarding **claim 7**, Schilling and Reudink teach all the limitations according to claim 6. Schilling further teaches power available for at least one of the coverage layer and the capacity layer is divided between carriers in the coverage layer and the capacity layer (Col. 11, lines 30-65).

9. Regarding **claim 8**, Schilling and Reudink teach all the limitations according to claim 1. Schilling teaches the cellular communication system comprises a multi-carrier system (6 directional antenna 109, Col. 7, lines 22-29).

Art Unit: 2617

10. Regarding **claim 9**, Schilling and Reudink teach all the limitations according to claim 1. Schilling further teaches the cellular communication system comprises a single carrier system (6 omni-directional antenna 109, Col. 7, lines 22-29).

11. Regarding **claims 10-18**, they are method claims corresponding to the apparatus claims 1-9. Therefore, they are rejected for the same reasons as claims 1-9.

Regarding **claim 19**, Schilling and Reudink teach a base station of a mobile communication system including at least one transmitter unit configured to transmit a carrier at a predetermined power level thereby defining a coverage area of a cell (Col. 3, lines 40-57 and background of the present invention), and further configured to transmit a variable number of carriers thereby defining, at least in part, a dynamically variable capacity of the cell (Col. 3, lines 36-39, Col. 8, lines 21-28 and Col 11 lines 25-55, Col. 8 lines 31-35 and Col. 10, lines 25-26, Col. 12 Line 55 - Col 13 Line 26 Col. 13 In 65- Col. 14 In 8; alternatively, Figs. 6 and 7, C9 L36-67), to dynamically vary the capacity of the cell (Col. 3, lines 36-39, Col. 8, lines 21-28 and Col 11 lines 25-55; alternatively, C12 L54-64; C1258-65 sector size is adjustable to accommodate from 80 users originally to now 81 users) which means more carriers are used to accommodate more users. Although, there's no explicit teaching that the number of carriers is increase in order to increase the capacity, it known in the art that one way to one way to accommodate more users is to increase the number of channels. In an analogous art, Reudink teaches the concept of adjusting the number of channels to accommodate the current

utilization of the cell (C11 L23-38). Therefore, one skill in the art at the time of the invention would see that Schilling's teaching of the adjusting of the sectors would have some adjusting means to adjust the number of channels/carriers in order to accommodate the unpredictable utilization of the sector.

12. Regarding **claim 20**, Schilling and Reudink teach all the limitations according to claim 19. Schilling further teaches power levels of a variable number of carriers depends upon a proximity of a mobile station associated with a carrier to a base station (Col. 10, lines 25-27).

13. Regarding **claim 21**, Schilling and Reudink teach all the limitations according to claim 20. Schilling further teaches a total power of the variable number of carriers comprises a predetermined power, and wherein a portion of said predetermined power among the variable number of carriers is determined by a total number of carriers (Col. 11, lines 30-65).

14. Regarding **claim 23**, Schilling and Reudink teach a cellular communication system according to claim 5, wherein the said power level is variable in dependence on a position of a mobile station (Col. 10, lines 25-27).

15. Regarding **claim 24**, Schilling and Reudink teach a method according to claim 14, further comprising varying the power level of a carrier in the capacity layer in dependence on a position of a mobile station (Col. 10, lines 25-27).



16. Claims **22** is rejected under 35 U.S.C. 103(a) as being unpatentable by **Schilling and Reudink** in view of **Lawrence** (US Publication Number 2004/0203837).

17. Regarding **claim 22**, Schilling and Reudink teach all the limitations according to claim 21. Schilling further teaches a second transmitting means for transmitting a variable number of users. However, he fails to teach that the power allocated to at least one carrier is configured to reduce in response to an increase in the variable number of carriers. In an analogous art, Lawrence teaches that the power level is adjusted according to the subscriber density and demand in a particular region (para. 2). Therefore, it would have been obvious for one of ordinary skill in the art the time of the invention to modify Schilling's teaching to include an adjustable power level in accordance to the capacity of the cell to maximize the signal quality.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-3, 5-12, 14-24 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2617


**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Lam whose telephone number is (571) 272-6497. The examiner can normally be reached on M - F 9 - 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DL

  
LESTER B. KINCAID  
SUPERVISORY PATENT EXAMINER